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# Aphids infesting crucifers in Canada

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## ERRATUM

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*Aphids infesting crucifers in Canada*

Interchange Figs. 3 A, B, C on page 9 and 7 A, B, C on page 13.

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# Aphids infesting crucifers in Canada

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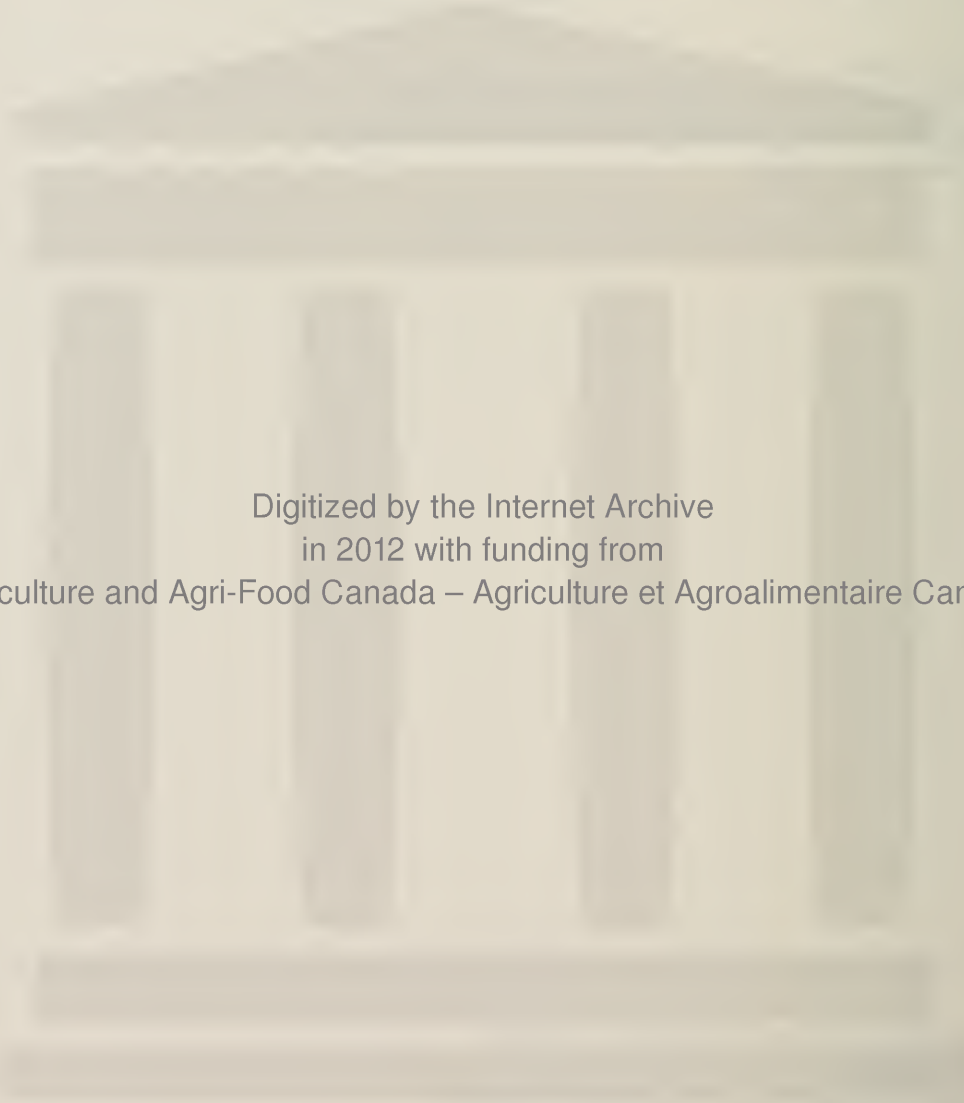
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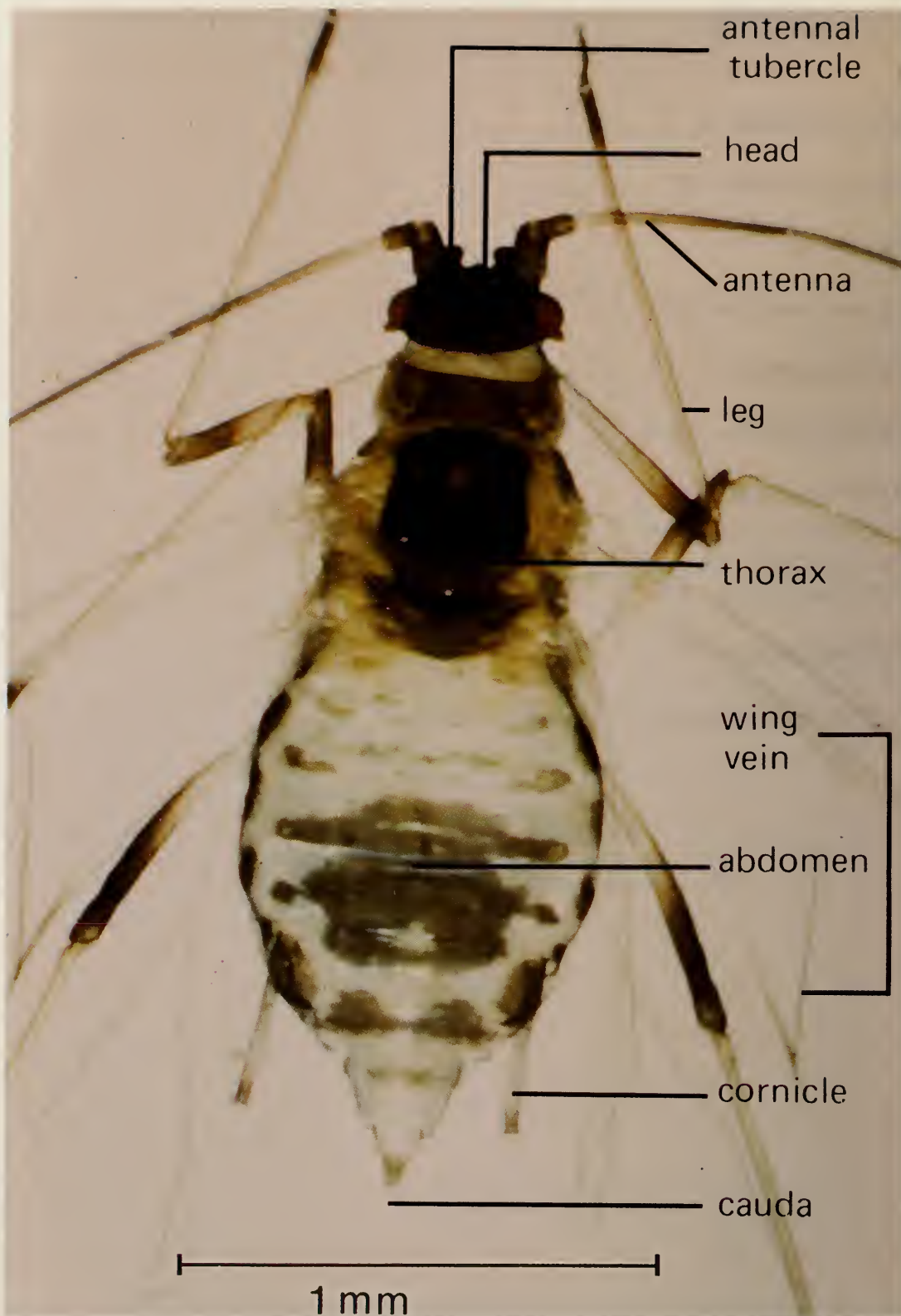


Fig. 1 Green peach aphid, *Myzus persicae* (Sulzer), showing features used to identify crucifer-infesting aphids.



# INTRODUCTION

This guide was developed as an aid to the field identification of aphids colonizing aerial portions of cruciferous crops belonging primarily to the genus *Brassicae* (e.g., cabbage, rutabaga, and mustard). The three most common species of aphids colonizing Cruciferae in Canada are: the green peach aphid, *Myzus persicae* (Sulzer); the cabbage aphid, *Brevicoryne brassicae* (Linnaeus); and the turnip aphid, *Lipaphis erysimi* (Kaltenbach). An additional species, the poplar petiolegall aphid, *Pemphigus populitransversus* Riley, commonly called the turnip root aphid, is an important pest in the United States but has not been reported as a pest in Canada.

The buckthorn aphid, *Aphis nasturtii* Kaltenbach, colonizes Cruciferae of the genera *Nasturtium* (e.g., watercress) and *Capsella*, but only a brief description of this aphid is included at the end of the guide because of the secondary importance of these crops.

## IDENTIFICATION

This publication allows for the rapid and reliable identification in the field of aphids that infest crucifers. It is not intended to replace detailed examination by experts. Keys published by taxonomists are useful for identifying the thousands of aphids found worldwide, but they require the microscopic examination of cleared and slide-mounted specimens. For this guide, which only involves three species, identification is based on characteristics that are visible either to the naked eye or with the use of a 6–10× hand lens (Fig. 1).

## LIFE CYCLE

Aphids have a complicated life cycle. They may be winged (alate) or wingless (apterous) depending on the time of year or nutritional quality of the host plant. Female aphids reproduce throughout most of the season without mating (parthenogenicity) and give rise to living young that are only female (viviparity). Thus new colonies have a characteristic appearance of one large aphid with numerous smaller progeny. Late in the fall males and females are produced, mating occurs, and the female lays eggs (ovoviparity). Aphids usually alternate between two hosts; they pass the winter in the egg stage on a woody host and the summer on an herbaceous host, which may be an agriculturally important crop.

## GREEN PEACH APHID

### *Myzus persicae* (Sulzer)

#### *Wingless form*

Head with well-developed, inward-pointing antennal tubercles (1 in Fig. 2). Body oval, widest just anterior to base of cornicles, uniformly pale yellow to green or occasionally red, opaque not shiny. Cornicles same color as body, darkened at tip, thin, medium length, and slightly swollen toward distal end (2). Cauda pale, short, fingerlike (digitate)(4). Appendages same shade as body, darkened at joints.

#### *Winged form*

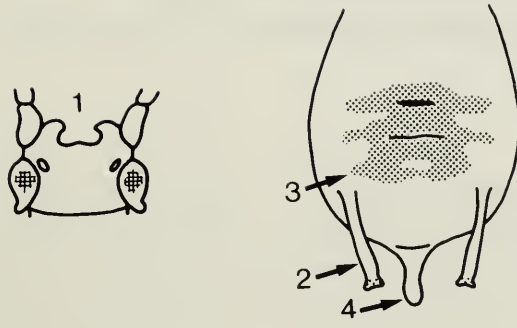
Similar to wingless form except for dark brown to black head and thorax (Fig. 3 a,b). Antenna and legs with pigmented areas. Abdomen with a distinct dark dorsal patch, irregular-sided with a clear "window" toward posterior edge (3). Wing veins pale.

#### *Biology*

Eggs of the green peach aphid overwinter on peach (*Prunus persicae*) and occasionally on Canada plum (*P. nigra* Ait.) in Ontario, Nova Scotia, and British Columbia. In the rest of Canada where the green peach aphid occurs, only wild plum is available as an overwintering host. Several generations are produced on the overwintering host until early summer, when winged migrants disperse to a large number of herbaceous plants, including all the cruciferous crops. This aphid is the most common species on cruciferous crops in Canada.

Green peach aphids prefer older senescing leaves and are usually evenly distributed within a field. Populations on Cruciferae normally remain low until late summer, but hot, dry conditions favor their colonization, and severe infestations may occur earlier under these conditions. This aphid does not form dense colonies (Fig. 3c), even when leaves are heavily infested.





**Fig. 2** Body structures characteristic of green peach aphids.



**Fig. 3** Green peach aphid, *Myzus persicae* (Sulzer): (a) wingless adult; (b) winged adult; (c) colony with various stages.

## CABBAGE APHID

### *Brevicoryne brassicae* (Linnaeus)

#### *Wingless form*

Front of head nearly flat to slightly convex and lacking well-developed tubercles (1 in Fig. 4). Abdomen dusky grayish green with dark segmented bands, somewhat elongate and widest toward middle. Wax glands present; abdomen heavily covered with mealy grayish white wax. Cornicles dusky, about twice as long as their width, and somewhat barrel-shaped (2). Cauda dusky and broadly triangular (4). Antennae and appendages mainly dark, paler at the base of each segment.

#### *Winged form*

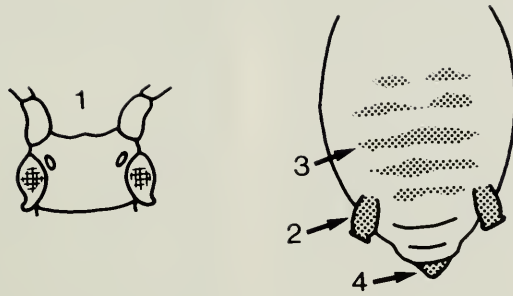
Winged forms with dark brown or black areas corresponding to dusky area in wingless forms (Fig. 5a,b), on a bright yellowish green abdomen (3). Wing veins dark.

#### *Biology*

Eggs of the cabbage aphid overwinter on cruciferous plants. Aphids migrate between cruciferous crops early in the season and commonly severely infest transplants soon after they have been set in the field. The cabbage aphid injects a toxin while feeding, which can cause yellowing and stunting of plants long after the aphids are removed. Cabbage is the preferred host, but flower stalks of canola and mustard are often heavily colonized.

The cabbage aphid forms very large, dense colonies (Fig. 5c) that are usually surrounded by copious quantities of secreted wax. Colonies may be scattered widely on a few plants or, occasionally, may infest a large number of plants within the field.





**Fig. 4** Body structures characteristic of cabbage aphids.



**Fig. 5** Cabbage aphid, *Brevicoryne brassicae* (Linnaeus): (a) wingless adult; (b) winged adult; (c) colony with various sizes.

## TURNIP APHID

### *Lipaphis erysimi* (Kaltenbach)

#### *Wingless form*

Antennal tubercles poorly developed (1 in Fig. 6). Body somewhat rounded, dusky yellowish green to olive green, and lightly coated with grayish white wax. Abdomen rounded to oval, wax glands usually distinct. Cornicles dusky, slightly tapering, and about four times longer than wide (2). Cauda dusky and tapering (4). Appendages and antennae uniformly dark.

#### *Winged form*

As for the wingless form, except head and thorax black (Fig. 7a,b). Abdomen pale yellow, central dorsal area lacking bands or patch (3). Wing veins dark.

#### *Biology*

Little is known about the biology of this aphid in Canada. It likely overwinters as eggs on Cruciferae, as feeding seems to be limited to these plants. Rutabaga, canola, mustard, and turnip are preferred hosts whereas cabbage, broccoli, and cauliflower are rarely colonized.

In Canada, one or two mature turnip aphids with several offspring is the most common grouping (Fig. 7c). Occasionally, leaves of crucifers will partially curl around small, dense colonies. Colonies are more common on newer leaves, but the entire plant can be evenly colonized. The turnip aphid is most numerous during hot, dry seasons.

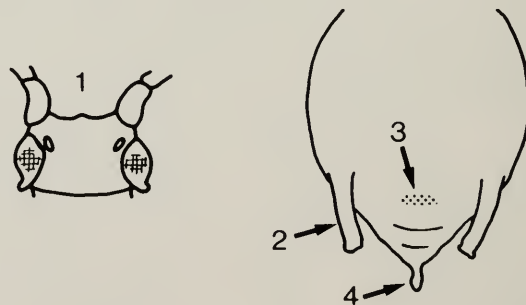
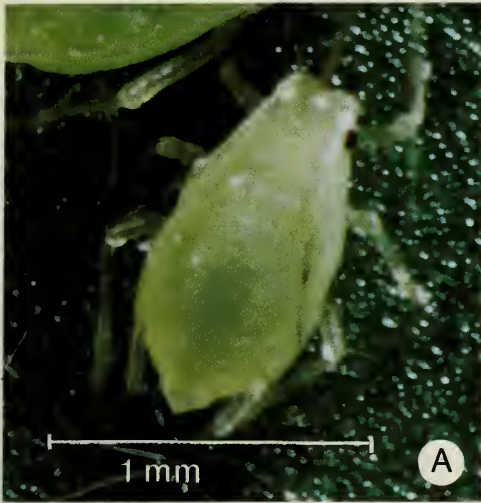


Fig. 6 Body structures characteristic of turnip aphids.





**Fig. 7** Turnip aphid, *Lipaphis erysimi* (Kaltenbach): (a) wingless adult; (b) winged adult; (c) colony with various sizes.

## OTHER APHIDS

### BUCKTHORN APHID

The buckthorn aphid, *Aphis nasturtii* Kaltenbach, is common on watercress (*Nasturtium* sp.) but rarely colonizes any of the *Brassica* spp.

*Wingless form* Aphids small, strongly oval-shaped to nearly round. Body and appendages uniformly bright lime green, except for some dusky areas on cauda, antennae, and tips of cornicles.

*Winged form* Head dark; thorax and abdomen pale yellowish green.

Other species of aphids occasionally feed on cruciferous crops, and, although offspring may be deposited, they seldom grow and develop on these crops. Two of the more common noncolonizing or incidental aphids on Cruciferae are the potato aphid, *Macrosiphum euphorbiae* (Thomas), and the corn leaf aphid, *Rhopalosiphum maidis* (Fitch).

### POTATO APHID

The potato aphid is a large, elongate, green or reddish pink aphid with long legs; antennae, cornicles, and cauda the same color as the body; except tip of cornicles, leg, and antennae with dark areas. Winged forms without pigmented head and thorax; wing veins pale. Immature aphids with a distinct central dorsal stripe.

### CORN LEAF APHID

The corn leaf aphid is a medium-sized aphid with short, dark antennae, legs, and cornicles. Body elongate, dark olive green or yellow green. Winged forms with dark head and thorax; abdomen with large lateral pigmented areas and dark bands posterior to cornicles, but lacking central dorsal abdominal markings.

## BIBLIOGRAPHY

The following publication provides useful information regarding aphids on cruciferous crops:

Blackman, R.L.; Eastop, V.F. 1984. Aphids on the world's crops: An identification and information guide. John Wiley and Sons, Chichester, U.K. 466 pp.

## ACKNOWLEDGMENTS

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